

## Simultaneous THEMIS observations of magnetospheric ULF waves and magnetopause Kelvin-Helmholtz waves for northward IMF

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We report simultaneous THEMIS observations of magnetospheric ultra-low frequency (ULF) waves and magnetopause Kelvin-Helmholtz (KH) vortices on the dusk side for northward IMF. On 15 April 2008 when the solar wind speed was about 400 km/s, the THEMIS-C (THC) probe detected large-amplitude (rolled-up) KH waves on the dusk-flank magnetopause at  $X = -7$  Re. At the same time, THD and THE, situated at about 21 MLT with geocentric distance of about 11 Re, both observed quasi-periodic ULF pulsations which were in the Pc 5 (2-7 mHz) range and were mostly compressional/poloidal. Their power spectral densities show that dominant frequencies in the ULF waves match with some of discrete frequencies in solar wind dynamic pressure fluctuations, rather than with those in the KH waves. This indicates that as on the day side [Kepko and Spence, 2003], magnetospheric Pc 5 waves behind the terminator can be driven by solar wind pressure variations, likely as waveguide modes; the magnetopause KH instability under typical solar wind speeds plays only a minor role in the excitation of magnetospheric pulsations, contrary to some theoretical predictions [e.g., Walker et al., 1992].

Kepko, L., and H. E. Spence (2003), Observations of discrete, global magnetospheric oscillations directly driven by solar wind density variations, *J. Geophys. Res.*, 108(A6), 1257, doi:10.1029/2002JA009676.

Walker, A. D. M., J. M. Ruohoniemi, K. B. Baker, R. A. Greenwald, and J. C. Samson (1992), Spatial and temporal behavior of ULF pulsations observed by the Goose Bay HF radar, *J. Geophys. Res.*, 97(A8), 12,187-12,202.